

AMENDMENTS TO THE CLAIMS

Please cancel claims 2, 6-7, 10-12, and 16-18, as follows:

1. (Canceled)

2. (Canceled)

3. (Previously presented) A flexible scintillation-type radiation detector for use in combination with a source of nuclear radiation as a level sensing gauge, comprising:

an elongated flexible tube having first and second closed ends and defining therein a scintillation chamber;

liquid scintillation material substantially filling the scintillation chamber;

said first closed end including a substantially optically-transparent first end closure member;

photodetection circuitry operably positioned relative to the first end closure member to quantitatively detect scintillating photons generated in the scintillation liquid indicative of radiation passing into the scintillation chamber;

an opaque, flexible protective sheath substantially surrounding the flexible tube;

further comprising an expansion chamber for accommodating volumetric expansion of the liquid scintillation material; and

wherein a slidable piston member is operably positioned in the scintillation chamber to define a variable volume expansion chamber free of liquid scintillation material adjacent to the second end.

4. (Original) The detector of claim 3, further comprising a stiffener to maintain a portion of the scintillation chamber in which the piston slidably moves to substantially prevent bending thereof.

5. (Original) The detector of claim 3, further comprising a spring positioned to bias the piston toward the scintillation liquid.

6. (Canceled)

7. (Canceled)

8. (Previously presented) A flexible scintillation-type radiation detector for use in combination with a source of nuclear radiation as a level sensing gauge, comprising:

an elongated flexible tube having first and second closed ends and defining therein a scintillation chamber;

liquid scintillation material substantially filling the scintillation chamber;

said first closed end including a substantially optically-transparent first end closure member;

photodetection circuitry operably positioned relative to the first end closure member to quantitatively detect scintillating photons generated in the scintillation liquid indicative of radiation passing into the scintillation chamber;

an opaque, flexible protective sheath substantially surrounding the flexible tube; and

an expansion chamber for accommodating volumetric expansion of the liquid scintillation material;

wherein the expansion chamber has a variable volume, the chamber being external of and in fluid communication with the flexible tube and including a movable wall therein; and

further comprising a spring means positioned to bias the movable wall toward the liquid scintillation material.

9. (Previously presented) A flexible scintillation-type radiation detector for use in combination with a source of nuclear radiation as a level sensing gauge, comprising:

an elongated flexible tube having first and second closed ends and defining therein a scintillation chamber;

liquid scintillation material substantially filling the scintillation chamber;

said first closed end including a substantially optically-transparent first end closure member;

photodetection circuitry operably positioned relative to the first end closure member to quantitatively detect scintillating photons generated in the scintillation liquid indicative of radiation

passing into the scintillation chamber;

an opaque, flexible protective sheath substantially surrounding the flexible tube; and

an expansion chamber for accommodating volumetric expansion of the liquid scintillation material;

wherein the expansion chamber has a variable volume, the chamber being external of and in fluid communication with the flexible tube and including a movable wall therein; and

further comprising a member positioned to selectively immobilize the movable wall in a fixed position.

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)